



The Case of the Missing Microphone

Grade 4 math · Multiplication, Rounding, Addition, Subtraction, Division · Reading level grades 3-4

Detective: _____ Date: _____

The Golden Microphone has disappeared right before the biggest concert of the year! Someone snuck backstage and snatched it from its velvet case. We need to find the thief before the spotlight turns on!

1. Solve each math problem. The answer is a number, and the letter beside it is what that number stands for.
2. In the clue boxes, write that letter in every box showing the same number, then read the secret clue.
3. Use each clue to cross suspects off the list. The one suspect left at the end is the culprit!

My answer: the microphone thief is _____

Possible suspects

Cross off a row as each clue rules it out. The one left at the end is the culprit.

NAME	FAVORITE INSTRUMENT	STAGE EFFECT	MICROPHONE GRIP	HAIR STYLE	SOUND WEAKNESS
Lizzo Loop	drum pad	neon fireworks	right handed grip	neon green dreads	static shock
Post Malone-star	laser guitar	sparkler kick	left handed grip	blue curls	loud bass drop
Dua Lipap	vocal pedal	neon fireworks	left handed grip	blue curls	loud bass drop
Cardi Beat	beat machine	neon fireworks	left handed grip	pink spikes	static shock
Bruno Marsbar	synth keyboard	sparkler kick	right handed grip	pink spikes	loud bass drop
Justin Beaver	drum pad	laser lightshow	left handed grip	pink spikes	static shock
Olivia Road	laser guitar	sparkler kick	left handed grip	pink spikes	loud bass drop
Snoop Doggie	laser guitar	autotune echo	right handed grip	blue curls	static shock
Pitbull Pup	laser guitar	neon fireworks	left handed grip	pink spikes	loud bass drop
Ed Sheerun	synth keyboard	sparkler kick	left handed grip	neon green dreads	static shock
Drake Dragon	synth keyboard	autotune echo	left handed grip	neon green dreads	static shock
The Weekday	synth keyboard	neon fireworks	left handed grip	pink spikes	static shock
Taylor Swiftbeat	synth keyboard	laser lightshow	left handed grip	pink spikes	static shock
Lady Gagaga	laser guitar	neon fireworks	right handed grip	pink spikes	high pitch squeal
Shakira Shake	laser guitar	autotune echo	right handed grip	pink spikes	static shock
Katy Perrywinkle	drum pad	fog machine	left handed grip	pink spikes	loud bass drop
Beyonce Bounce	synth keyboard	sparkler kick	left handed grip	neon green dreads	high pitch squeal
Harry Stylespin	drum pad	fog machine	left handed grip	pink spikes	static shock
Lil Nas Xray	drum pad	autotune echo	left handed grip	neon green dreads	static shock
Billie Eyelasher	drum pad	laser lightshow	left handed grip	blue curls	static shock
Selena Gomezzo	beat machine	fog machine	left handed grip	blue curls	static shock

CLUE 1
Multiplication facts (1-12)

We found the VIP seating chart. The rows and chairs form a giant grid. Let us multiply them to find how many seats are in the front section.

Solve each problem, then write its letter in every clue box that shows the same number.

T			T											T				
22	25	9	22	25	15	9	88	60	96	9	24	28	96	22	55	24	9	132
88	96	49	56	132	63	25	15	28	9									

$11 \times 2 = \square \rightarrow \boxed{\text{T}}$

$11 \times 12 = \square \rightarrow \boxed{\text{A}}$

$5 \times 12 = \square \rightarrow \boxed{\text{D}}$

$5 \times 3 = \square \rightarrow \boxed{\text{I}}$

$7 \times 4 = \square \rightarrow \boxed{\text{N}}$

$7 \times 7 = \square \rightarrow \boxed{\text{G}}$

$7 \times 8 = \square \rightarrow \boxed{\text{M}}$

$1 \times 9 = \square \rightarrow \boxed{\text{E}}$

$11 \times 8 = \square \rightarrow \boxed{\text{F}}$

$9 \times 7 = \square \rightarrow \boxed{\text{C}}$

$5 \times 11 = \square \rightarrow \boxed{\text{U}}$

$3 \times 8 = \square \rightarrow \boxed{\text{S}}$

$8 \times 12 = \square \rightarrow \boxed{\text{O}}$

$5 \times 5 = \square \rightarrow \boxed{\text{H}}$

Scratch space:

CLUE 2

The soundboard screen is cracked. It only displays rounded numbers now. Let us estimate the total volume levels to get our next big hint.

Solve each problem, then write its letter in every clue box that shows the same number.

7000 700 5000 130 300 130 110 5000 4300 7000 700 430 130 430 50 5000 230 7000

700 430 1100 90 5000 90 290 3000 1700 110

Round 7,089 to the nearest thousand $\rightarrow$ **T**

Round 669 to the nearest hundred $\rightarrow$ **H**

Round 49 to the nearest ten $\rightarrow$ **L**

Round 130 to the nearest ten $\rightarrow$ **S**

Round 4,276 to the nearest hundred → **C**

Round 5,119 to the nearest thousand → **E**

Round 428 to the nearest ten $\rightarrow$ **A**

Round 108 to the nearest ten $\rightarrow$ **P**

Round 2,895 to the nearest thousand $\rightarrow$ **R**

Round 286 to the nearest ten → **G**

Round 227 to the nearest ten $\rightarrow$ **F**

Round 1,669 to the nearest hundred $\rightarrow$

Round 311 to the nearest hundred → **U**

Round 1,117 to the nearest hundred $\rightarrow$ **N**

Round 87 to the nearest ten → **D**

Scratch space:

CLUE 3 Addition

A friendly roadie handed us two lists of suspicious gear boxes. We must add the counts from both lists to find the total number of clues.

Solve each problem, then write its letter in every clue box that shows the same number.

W																	
7066	8194	6525	2624	6525	2623	6525	8855	2197	8397	6917	6525	8397	6917	6525	6917	8855	5572

8397	6120	8354	5572	2624

$3435 + 3631 = \square \rightarrow \mathbf{W}$	$2099 + 3473 = \square \rightarrow \mathbf{C}$	$4093 + 2432 = \square \rightarrow \mathbf{A}$
$1564 + 1060 = \square \rightarrow \mathbf{K}$	$1168 + 1029 = \square \rightarrow \mathbf{N}$	$5697 + 3158 = \square \rightarrow \mathbf{I}$
$5590 + 2764 = \square \rightarrow \mathbf{O}$	$2560 + 5634 = \square \rightarrow \mathbf{E}$	$5783 + 2614 = \square \rightarrow \mathbf{S}$
$4027 + 2890 = \square \rightarrow \mathbf{T}$	$3936 + 2184 = \square \rightarrow \mathbf{H}$	$1665 + 958 = \square \rightarrow \mathbf{G}$

Scratch space:

CLUE 4 Subtraction

The backup dancers had a pile of sparkly hats, but some went missing. We need to subtract the stolen hats to see what is left behind.

Solve each problem, then write its letter in every clue box that shows the same number.

F																	
8346	7760	7787	3407	8193	5031	8248	3407	3752	7060	5031	8248	3752	1186	7060	2300	3180	

3180	1894	1186	7060	3790	1186	3407	1186

$$11923 - 3577 = \boxed{} \rightarrow \boxed{\text{F}}$$

$$2099 - 913 = \boxed{} \rightarrow \boxed{\text{E}}$$

$$4828 - 1038 = \boxed{} \rightarrow \boxed{\text{C}}$$

$$6519 - 1488 = \boxed{} \rightarrow \boxed{\text{P}}$$

$$12321 - 4534 = \boxed{} \rightarrow \boxed{\text{U}}$$

$$4461 - 2567 = \boxed{} \rightarrow \boxed{\text{H}}$$

$$8224 - 4472 = \boxed{} \rightarrow \boxed{\text{K}}$$

$$7874 - 4467 = \boxed{} \rightarrow \boxed{\text{N}}$$

$$7833 - 73 = \boxed{} \rightarrow \boxed{\text{O}}$$

$$5737 - 2557 = \boxed{} \rightarrow \boxed{\text{T}}$$

$$10443 - 3383 = \boxed{} \rightarrow \boxed{\text{S}}$$

$$4570 - 2270 = \boxed{} \rightarrow \boxed{\text{A}}$$

$$9828 - 1635 = \boxed{} \rightarrow \boxed{\text{D}}$$

$$10599 - 2351 = \boxed{} \rightarrow \boxed{\text{I}}$$

Scratch space:

CLUE 5**Division facts (1-12) - the last clue**

The band has a box of guitar picks to share equally among the players. Let us divide them up to see how many picks each person gets.

First solve each problem. Then find each answer in the numbered list below and cross that sentence out. One sentence will be left - that is exactly what the villain did!

Step 1 - solve these:

$16 \div 8 = \boxed{}$

$8 \div 1 = \boxed{}$

$28 \div 4 = \boxed{}$

$36 \div 3 = \boxed{}$

$5 \div 1 = \boxed{}$

$36 \div 4 = \boxed{}$

$66 \div 6 = \boxed{}$

$1 \div 1 = \boxed{}$

$40 \div 10 = \boxed{}$

$120 \div 12 = \boxed{}$

$27 \div 9 = \boxed{}$

Step 2 - cross out the sentence with each answer:

1. The villain tunes the laser guitar, then fires the laser lightshow.
2. The villain taps the drum pad, then fires the laser lightshow.
3. The villain clicks the vocal pedal, then lights the neon fireworks.
4. The villain taps the drum pad, then lights the neon fireworks.
5. The villain cranks the beat machine, then starts the fog machine.
6. The villain plays the synth keyboard, then fires the laser lightshow.
7. The villain plays the synth keyboard, then lights the neon fireworks.
8. The villain cranks the beat machine, then lights the neon fireworks.
9. The villain cranks the beat machine, then triggers a sparkler kick.
10. The villain cranks the beat machine, then turns on the autotune echo.
11. The villain plays the synth keyboard, then turns on the autotune echo.
12. The villain plays the synth keyboard, then starts the fog machine.

Answer Key

The Case of the Missing Microphone

Culprit: Taylor Swiftbeat

synth keyboard · laser lightshow · left handed grip · pink spikes · static shock

Trail: Start 21 → Clue 1 18 → Clue 2 13 → Clue 3 8 → Clue 4 4 → Clue 5 1

Clue 1 (Multiplication facts (1-12)): "THE THIEF DOES NOT USE A FOG MACHINE"

$11 \times 2 = 22$ (T) · $11 \times 12 = 132$ (A) · $5 \times 12 = 60$ (D) · $5 \times 3 = 15$ (I) · $7 \times 4 = 28$ (N) · $7 \times 7 = 49$ (G) · $7 \times 8 = 56$ (M) · $1 \times 9 = 9$ (E) · $11 \times 8 = 88$ (F) · $9 \times 7 = 63$ (C) · $5 \times 11 = 55$ (U) · $3 \times 8 = 24$ (S) · $8 \times 12 = 96$ (O) · $5 \times 5 = 25$ (H)

Clue 2 (Rounding): "THE SUSPECT HAS A LEFT HANDED GRIP"

Round 7,089 to the nearest thousand = 7000 (T) · Round 669 to the nearest hundred = 700 (H) · Round 49 to the nearest ten = 50 (L) · Round 130 to the nearest ten = 130 (S) · Round 4,276 to the nearest hundred = 4300 (C) · Round 5,119 to the nearest thousand = 5000 (E) · Round 428 to the nearest ten = 430 (A) · Round 108 to the nearest ten = 110 (P) · Round 2,895 to the nearest thousand = 3000 (R) · Round 286 to the nearest ten = 290 (G) · Round 227 to the nearest ten = 230 (F) · Round 1,669 to the nearest hundred = 1700 (I) · Round 311 to the nearest hundred = 300 (U) · Round 1,117 to the nearest hundred = 1100 (N) · Round 87 to the nearest ten = 90 (D)

Clue 3 (Addition): "WEAK AGAINST A STATIC SHOCK"

$3435 + 3631 = 7066$ (W) · $2099 + 3473 = 5572$ (C) · $4093 + 2432 = 6525$ (A) · $1564 + 1060 = 2624$ (K) · $1168 + 1029 = 2197$ (N) · $5697 + 3158 = 8855$ (I) · $5590 + 2764 = 8354$ (O) · $2560 + 5634 = 8194$ (E) · $5783 + 2614 = 8397$ (S) · $4027 + 2890 = 6917$ (T) · $3936 + 2184 = 6120$ (H) · $1665 + 958 = 2623$ (G)

Clue 4 (Subtraction): "FOUND PINK SPIKES AT THE SCENE"

$11923 - 3577 = 8346$ (F) · $2099 - 913 = 1186$ (E) · $4828 - 1038 = 3790$ (C) · $6519 - 1488 = 5031$ (P) · $12321 - 4534 = 7787$ (U) · $4461 - 2567 = 1894$ (H) · $8224 - 4472 = 3752$ (K) · $7874 - 4467 = 3407$ (N) · $7833 - 73 = 7760$ (O) · $5737 - 2557 = 3180$ (T) · $10443 - 3383 = 7060$ (S) · $4570 - 2270 = 2300$ (A) · $9828 - 1635 = 8193$ (D) · $10599 - 2351 = 8248$ (I)

Clue 5 (Division facts (1-12)): surviving statement is box 6 → Taylor Swiftbeat

$16 \div 8 = 2$ · $8 \div 1 = 8$ · $28 \div 4 = 7$ · $36 \div 3 = 12$ · $5 \div 1 = 5$ · $36 \div 4 = 9$ · $66 \div 6 = 11$ · $1 \div 1 = 1$ · $40 \div 10 = 4$ · $120 \div 12 = 10$ · $27 \div 9 = 3$